

# New combinations, names and taxonomic notes on *Gentianella* (Gentianaceae) from South America and New Zealand

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**SYNOPSIS.** *Gentianella* is a large genus of about 200 species. It was segregated from the genus *Gentiana* in 1794. Since then the study histories of the two genera have been interwoven. During study on *Gentiana* and *Gentianella* it was realized that 104 new combinations and two names needed to be made from South America and New Zealand.

## INTRODUCTION

The genus *Gentianella* was segregated from the genus *Gentiana* L. by Moench in 1794. Since then the study histories of the two genera have been closely interwoven. The majority of species of *Gentianella* were originally described within *Gentiana*. Since the last half century, Fabris (1953–1981), Gillet (1957), Holub (1967–1983) and Pringle (1981–1987) etc. have studied *Gentianella*, and made a number of nomenclatural transfers, but these studies are insufficient for the whole genus and there are still too many species under *Gentiana*. During study on *Gentiana* and *Gentianella* in Eurasian herbaria, it was realized that 104 new combinations and two names of *Gentianella* needed to be made from South America and New Zealand.

*Gentianella* Moench is a large genus of about 200 species. It has an almost global distribution chiefly centred on South America and New Zealand.

## NEW COMBINATIONS AND TAXONOMIC NOTES

*Gentianella achalensis* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana achalensis* Hieron., *Bot. Acad. Nac. Cordova*, **4**: 373 (1881), nom. nud; Gilg, *Bot. Jahrb.*, **22**: 322 (1896). Type: Argentina, *Hieronymus* 526 (K!).

*Gentianella albido-caerulea* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana albido-caerulea* Gilg, *Bot. Jahrb.*, **22**: 323 (1896). Syntypes: Bolivia, M. Bang 1132 (n.v.), O. Kuntze (n.v.).

*Gentianella andreae-mathewsi* (Briquet) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana andreae-mathewsi* Briquet, *Candollea*, **4**: 326 (1931), based on *Gentiana mathewsi* Gilg, *Bot. Jahrb.*, **54** (Beibl. 118): 64 (1917), non Petrie (1911) (*Trans. Proc. N. Zeal. Inst.*, **44**: 183). Type: Peru, Mathews (n.v.).

*Gentianella antarctica* (Kirk) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana concinna* var. *robusta* Hook. f., *Fl. Antarct.*, **1**: 53 (1844). *Gentiana antarctica* Kirk, *Trans. Proc. N. Zeal. Inst.* **27**: 339, 1894 (1895). Type: New Zealand, T. Kirk, W. 4729 (n.v.).

*Gentianella antipoda* (Kirk) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana antipoda* Kirk, *Trans. Proc. N. Zeal. Inst.*, **23**: 440. 1890

(1891), nom. nud. et **27**: 340. 1894 (1895). Type: New Zealand, T. Kirk (K! – isotype).

*Gentianella armerioides* (Griseb.) T. N. Ho & S. W. Liu, **comb. nov.** *Gentiana armerioides* Griseb. in *Lechler, Berb. Am. Austr.*, **58** (1857). Type: Peru, *Lechler* 2000a (P! – isotype).

*Gentianella astonii* (Petrie) T. N. Ho & S. W. Liu, **comb. nov.** *Gentiana astonii* Petrie, *Trans. Proc. N. Zeal. Inst.*, **48**: 187. 1915 (1916). Type: New Zealand, Valley of Ure river, B. C. Aston (WELT! – holotype).

*Gentianella atroviolacea* (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana atroviolacea* Gilg, *Bot. Jahrb.*, **54** (Beibl. 118): 53 (1917). Type: Columbia, *Kalbreyer* 1200 (K! – isotype).

*Gentiana solidagooides* Reim., *Bot. Jahrb.*, **62**: 329 (1929). Type: Columbia, (K! no. 10574), **syn. nov.**

*Gentianella bangii* (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana bangii* Gilg, *Bot. Jahrb.*, **22**: 324 (May 1896), nec Rusby (end 1896) (*Mem. Torr. Bot. Club*, **6**: 79). Type: Bolivia, M. Bang 1153 (K! – isotype).

*Gentianella bellatula* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana bellatula* Gilg, *Bot. Jahrb.*, **50** (Beibl. 111): 49 (1913). Syntypes: Bolivia, *Hauthal* 201, 218 (all n.v.).

*Gentianella bellidifolia* (Hook. f.) Holub var. *divisa* (Kirk) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana bellidifolia* var. *divisa* Kirk, *Trans. Proc. N. Zeal. Inst.*, **27**: 337. 1894 (1895). Type: New Zealand, Ashburton Mountains, T. H. Potts, W. 4714 (n.v.).

*Gentiana divisa* (Kirk) Cheeseman., *Man. N. Zeal Fl.*, 453 (1906).

*Gentianella bockii* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana bockii* Gilg, *Bot. Jahrb.*, **54** (Beibl. 118): 34 (1917). Syntypes: Bolivia, Bock in herb. *Herzog* 2480e (n.v.), *Buchtien* 1481 (n.v.).

*Gentianella bridgesii* (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana bridgesii* Gilg, *Bot. Jahrb.*, **22**: 316 (1896). Syntypes: Bolivia, Bridges a. 1850 (n.v.), O. Kuntze (n.v.).

*Gentianella briquetiana* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana briquetiana* Gilg, *Bot. Jahrb.*, **54** (Beibl. 118): 32 (1917). Type: Bolivia, Larecaja, *Mandon* 361 (P! – holotype, BM! K! – isotypes).

*Gentianella bromifolia* (Griseb.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana bromifolia* Griseb., *Glett. Abh.*, **19**: 208 (1874). Syntypes: Argentina, Tucuman, *Lorrenz* 775 (K!), 303 (n.v.).

*Gentianella brunneo-tincta* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana brunneo-tincta* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 37 (1906).  
Type: Peru, *Weberbauei* 3092 (n.v.).

*Gentianella buchtienii* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana buchtienii* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 66 (1917).  
Type: Bolivia, *Buchtien* 48 (K! – lectotype designated here, BM! – isolectotype).

*Gentianella calcarea* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana calcarea* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 42 (1906). Type: Peru, *Weberbauer* 2539 (n.v.).

*Gentianella centamalensis* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana centamalensis* Gilg, *Bot. Jahrb.*, **22**: 334 (1896). Type: Peru, *Stuebel* 41 (n.v.).

*Gentianella cerina* (Hook. f.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana cerina* Hook. f., *Fl. Antarct.*, **1**: 54, t. 36 (1844). Type: New Zealand, Ins. Auckland, *J. D. Hooker* (K! – holotype).

*Gentianella chathamica* (Cheeseman) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana chathamica* Cheeseman, *Man. N. Zeal. Fl.*, 449 (1906). Type: New Zealand, *F. A. D. Cox* (BM! K! – isotypes).

*Gentianella chrysanthia* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana chrysanthia* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 81 (1917). Type: Bolivia, *Herzog* 2044 (n.v.).

*Gentianella chrysosphaera* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana chrysosphaera* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 37 (1917). Type: Peru, *Weberbauer* 6521 (n.v.).

*Gentianella chrysotaenia* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana chrysotaenia* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 39 (1917). Syntypes: Peru, *Weberbauer* 6528, 6914 (all n.v.).

*Gentianella claytonioides* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana claytonioides* Gilg, *Bot. Jahrb.*, **22**: 318 (1896). Type: Argentina, Rioja, *Hieronymous & Niederlein* (n.v.).

*Gentianella coccinea* (G. Don) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana coccinea* G. Don, *Gen. Syst.*, **4**: 196 (1838). Type: Peru, *Pavon* (BM! – isotype).

*Gentianella concinna* (Hook. f.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana concinna* Hook. f., *Fl. Antarct.*, **53**, t. 35 (1844). Type: New Zealand, Ins. Auckland, *J. D. Hooker* (K! – holotype).

*Gentianella coquimbensis* (Briquet) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana coquimbensis* Briquet, *Candollea*, **4**: 328 (1931). Type: Chile, Coquimbo, M. Gay (P! – isotype)

*Gentianella corallina* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana corallina* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 48 (1906). Type: Peru, *Weberbauer* 4288 (n.v.).

*Gentianella crassiuscula* T. N. Ho & S. W. Liu, **nom. nov.**

*Gentiana crassicaulis* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 60 (1917), non Duthie ex Burkhill (1906) (*J. As. Soc. Beng. n. s.* **2**: 316). Type: Peru, *Lobb* (n.v.).

*Gentianella crassulifolia* Fabris, *Bol. Soc. Argent. Bot.*, **8**: 25 (1959).  
*Gentiana crassulifolia* Griseb., *Gen. Sp. Gent.*, **227** (1838). Type:

Columbia, *Jameson* 455 (K!).  
*G. crassulifolia* is a subshrub, characterised by crowded, imbricate, rigid and subcoriaceous leaves, very short pedicels and flowers crowded in a head at the top of the stem. Its calyx-lobes are as long as to slightly longer than the tube. Leaf shape shows some variation. They are oblong, elliptic, lanceolate to ovate. Two varieties can be recognised.

var. *crassulifolia*

*Gentiana selaginifolia* Griseb., *Linnaea*, **22**: 42 (1849). Type: Columbia, *Hartweg* 1252 (P! – isotype).

*Gentiana engleri* Gilg, *Bot. Jahrb.*, **22**: 314 (1896). Type: S. Columbia, *Lehman* 666 (BM!, K!), **syn. nov.**

*Gentiana dacydrioides* Gilg, *Bot. Jahrb.*, **22**: 312 (1896). Type: S. Columbia, *Lehman* 2682 (BM! – isotype), **syn. nov.**

*Gentianella selaginifolia* (Griseb.) Fabris, *Bol. Soc. Argent. Bot.*, **8**: 25 (1959).

*Gentianella dacydrioides* (Gilg) Weaver & Rudenberg, *J. Arnold. Arbor.*, **56**(2): 215 (1975). Calyx-lobes lanceolate; corolla c. 15 mm.

var. *hypericoides* (Gilg.) T. N. Ho, **stat. et comb. nov.**

*Gentiana hypericoides* Gilg, *Bot. Jahrb.*, **22**: 312 (1896). Type: Ecuador, *Lehman* 6521 (K!).

*Gentianella hypericoides* (Gilg) Fabris, *Bol. Soc. Argent. Bot.*, **8**: 184 (1960). Calyx-lobes oblong-lanceolate; corolla c. 20–25 mm.

*Gentianella crossolaema* (Wedd.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana crossolaema* Wedd., *Chlor. And.*, **2**: 55 (1859). Type: Peru, *Weddel* (P! – holotype).

*Gentianella cupiformis* T. N. Ho & S. W. Liu, **nom. nov.**

*Gentiana campanuloides* Gilg, *Bot. Jahrb.*, **22**: 320 (1916), non Willd. ex Roem. & Schult. (1820) (Roem. & Schult., *Syst.*, **6**: 184). Type: Argentina, *Lorentz & Hieronymus* (n.v.).

*Gentianella dasythamna* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana dasythamna* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 63 (1917). Type: Bolivia, Larecaja, *Mandon* 363 (P! – holotype, BM! K! – isotypes).

*Gentianella dissitifolia* (Griseb.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana dissitifolia* Griseb., *Gen. Sp. Gent.*, **229** (1839). Type: Peru, *Dombey* 394 (P! – lectotype designated here).

*Gentianella dombeyana* (Wedd.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana dombeyana* Wedd., *Chlor. And.*, **2**: 62 (1845). Type: Peru, *Dombey* (P! – holotype).

*Gentianella ericotithamna* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana ericotithamna* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 50 (1906). Type: Peru, *Weberbauer* 3381 (n.v.).

*Gentianella eurysepala* (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana eurysepala* Gilg, *Bot. Jahrb.*, **50** (Beibl. 111): 50 (1913). Type: Peru, *Weberbauer* 5676 (n.v.).

*Gentianella fiebrigii* (Gilg) Holub, *Folia Geobot. & Phytotax.*, Praha, **2**: 117 (1967).

*Gentiana fiebrigii* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 45 (1906). Type: Bolivia, K. *Fiebrig* 3187 (BM! K! – isotypes).

*Gentiana gynophora* Gilg, *Bot. Jahrb.*, **22**: 305 (1896). Type: Bolivia, M. *Bang* 1231 (BM! K! – isotypes), **syn. nov.**

There is no clear dividing line between *G. gynophora* with long-petiolate basal leaves and scapose stem and *G. fiebrigii* with less long-petiolate basal leaves and scapose or foliate stem. *G. gynophora* is therefore not maintained as a distinct species.

*Gentianella filipes* (Cheeseman) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana filipes* Cheeseman, *Trans. Proc. N. Zeal. Inst.*, **28**: 536 (1896). Type: New Zealand, Mount Arthur, T. F. Cheeseman (BM! K! – isotypes).

*Gentianella florida* (Griseb.) Holub, *Folia Geobot. Phytotax.*, Praha, **2**: 117 (1967). Type: Argentina, Tucuman, *Lorentz* 310 (K!).

*Gentiana totorensis* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 84 (1917). Type: Bolivia, *Herzog* 2032 (n.v.), **syn. nov.**

*Gentianella fruticulosa* (Domb. ex Wedd.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana fruticulosa* Domb. ex Wedd., *Chlor. And.*, **2**: 71 (1839). Type: Peru, *Dombe* (P! – holotype).

*Gentianella gibbsii* (Petrie) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana gibbsii* Petrie, *Trans. Proc. N. Zeal. Inst.*, **49**: 52. 1916 (1917). Type: New Zealand, Stavart Island, F. G. Gibbs in herb. D. Petrie, W. 4709 (WELT! – holotype).

*Gentianella gracilifolia* (Cheeseman) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana gracilifolia* Cheeseman, *Man. N. Zeal. Fl.* 1144 (1906).

Type: New Zealand, Mount Arthur Plateau, F. G. Gibbs in herb. T. F. Cheeseman 137 (BM! K! – isotypes).

- Gentianella graebneriana** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana graebneriana* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 24 (1917).  
 Type: Peru, *Weberbauer* 6051 (n.v.).
- Gentianella grisebachii** (Hook. f.) T. N. Ho, **comb. nov.**  
*Gentiana grisebachii* Hook. f., *Ic. Pl.*, t. 636 (1844). Type: New Zealand, Rotuari-Tongariro, *J. C. Bidwill* (K! – holotype).
- Gentianella ignea** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana ignea* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 49 (1906). Type: Peru, *Weberbauer* 746 (n.v.).
- Gentianella krauseana** (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana krauseana* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 45 (1906). Type: Bolivia, *K. Fiebrig* 3187c (n.v.).
- Gentianella kuntzei** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana kuntzei* Gilg, *Bot. Jahrb.*, **22**: 326 (May 1896). Type: Bolivia, *O. Kuntze* (n.v.).
- Gentiana cochabambensis* Rusby, *Mem. Torr. Bot. Club*, **6**: 76 (End 1896). Type: Bolivia, *M. Bang* 1232 (BM! K! – isotypes).
- Gentianella kusnezowii** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana kusnezowii* Gilg, *Bot. Jahrb.*, **22**: 325 (1896). Type: Bolivia, *M. Bang* 1230 (BM! K! – isotypes).
- Gentianella larecajensis** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana larecajensis* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 31 (1917).  
 Types: Bolivia, Larecaja, *Mandon* 362 (P! – lectotype designated here, BM! K! – isolectotypes), 363 P. P. (BM! K!).
- Gentianella lilacina** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lilacina* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 40 (1906). Type: Peru, *Weberbauer* 3223 (n.v.).
- Gentianella lilacino-flavescens** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lilacino-flavescens* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 38 (1917). Type: Bolivia, *Herzog* 2114 (n.v.).
- Gentianella limoselloides** (Kunth) Fabris, *Bol. Soc. Argent. Bot.*, **8**: 166 (1960).  
*Gentianaana limoselloides* Kunth, *Nov. Gen.*, **3**: 130 (1818). Types: Ecuador, *Humboldt & Bonpland* (P! – lectotype designated here), *Bonpland* 2266 (P!).
- Gentiana paludicola* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 42 (1906). Type: Peru, *Weberbauer* 2694 (n.v.), **syn. nov.**  
*G. limoselloides* is a widespread and variable species. It shows considerable variation especially in petiole length of the basal leaves and in caudine leaf shapes which are spathulate, oblong to lanceolate. Clearly, *G. paludicola* with lanceolate caudine leaves and long-petiolate basal leaves can not be maintained at any rank.
- Gentianella lineata** (Kirk) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lineata* Kirk, *Trans. Proc. N. Zeal. Inst.*, **27**: 334, t. 27. 1894 (1895). Type: New Zealand, Hollows on the crest of the Longwood Range, *T. Kirk* (K! – isotype).
- Gentianella liniflora** (Kunth) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana liniflora* Kunth, *Nov. Gen. Sp.*, **3**: 171 (1818). Type: Peru, *Humboldt & Bonpland* (P! – holotype).
- Gentianella lithophila** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lithophila* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 39 (1917). Type: Bolivia, *Herzog* 2115 (n.v.).
- Gentianella lobbii** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lobbii* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 60 (1917). Type: Peru, *Lobb* (n.v.).
- Gentianella lurido-violacea** (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lurido-violacea* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 37 (1906). Type: Peru, *Weberbauer* 3759 (n.v.).
- Gentianella lythroides** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana lythroides* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 24 (1917). Type: Bolivia, *Herzog* 2229 (n.v.).

- Gentianella macrorriza** (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana macrorriza* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 40 (1917). Type: Bolivia, *Herzog* 2271 (n.v.).
- Gentianella magellanica** (Gaudich.) Fabris in D. M. Moore, *Vase.*, *Fl. Falkland Isl.* 103 (1968).  
*Gentiana magellanica* Gaudich. in Freyc. *Voy. Bot.* 449 (1826). Type: Iles Malouines, *Gaudichaud* (K! P! – isotypes).  
*Gentiana pearcei* Philippi, *Anal. Univ. Santiago*, **18**: 65 (1861). Type: Chile, *Philippi* (K! – isotype), **syn. nov.**  
*Gentiana valdiviana* Philippi, *Anal. Univ. Chil.*, **40**: 206 (1895). Type: Chile, *Philippi* (K! – isotype), **syn. nov.**  
*G. magellanica* is a variable species in leaf, calyx-lobe shapes and corolla size. Leaves are oblong, ovate or lanceolate. Calyx-lobes are usually oblong, rarely ovate or lanceolate and all longer than the tube. The range of corolla size is (10–)13–18(–20) mm. The differences in calyx-lobe shape and corolla size used to separate *G. valdiviana* and *G. pearcei* from *G. magellanica* are not of taxonomic significance.
- Gentianella mathewssii** (Petrie) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana mathewssii* Petrie, *Trans. Proc. N. Zeal. Inst.*, **44**: 183. 1911 (1912). Type: New Zealand, near Lake Harris, *B. Petrie* W. 4710 (WELT! – holotype).
- Gentianella mesembrianthemooides** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana mesembrianthemooides* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 41 (1906). Type: Peru, *Weberbauer* 3303 (n.v.).
- Gentianella muscoidea** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana muscoidea* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 35 (1906). Type: Peru, *Weberbauer* no. Ph. 96 (n.v.).
- Gentianella narcissoides** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana narcissoides* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 65 (1917). Type: Bolivia, *Herzog* 2414 (n.v.).
- Gentianella neomandonii** (R. C. Foster) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana neomandonii* R. C. Foster, *Rhodora*, **56**: 103 (1954), based on *Gentiana mandonii* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 37 (1917), non Rusby (1896) (*Mem. Torr. Bot. Club*, **6**: 80). Type: Bolivia, *Mandon* 363a (P! – holotype, BM! K! – isotypes).
- Gentianella odontosepala** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana odontosepala* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 48 (1906). Type: Bolivia, *M. Bang* 2671 (n.v.).
- Gentianella oreosilena** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana oreosilena* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 40 (1906). Type: Peru, *Weberbauer* 4288 (n.v.).
- Gentianella orobanchoides** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana orobanchoides* Gilg, *Bot. Jahrb.*, **22**: 333 (1896). Type: Bolivia, *Mandon* 366 (P! – lectotype designated here, BM! K! – isolectotypes).
- Gentianella pachystemon** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana pachystemon* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 46 (1917). Syntypes: Peru, *Stuebel* 51, 52 (all n.v.).
- Gentianella palcana** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana palcana* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 47 (1917). Syntypes: Bolivia, *Herzog* 2176 (n.v.), *Stuebel* 46c (n.v.).
- Gentianella pallido-lilacina** (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**  
*Gentiana pallido-lilacina* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 58 (1917). Type: Bolivia, *Herzog* 2028 (n.v.).
- Gentianella parviflora** (Griseb.) T. N. Ho, **stat. et comb. nov.**  
*Gentiana coerulescens* Gill. ex Wedd. var. *parviflora* Griseb., *Symb. Fl. Argent.*, **237** (1879). Type: Argentina, *Hieronymus* 464 (K!).
- Gentianella peruviana** (Griseb.) Fabris, *Bol. Soc. Argent. Bot.*, **7**: 93 (1958).  
*Gentiana limoselloides* Kunth var. *peruviana* Griseb., *Gen. Sp. Gent.*, **215** (1838). Type: Peru, *Weddell* 4445 (P! – Type).  
*Gentiana peruviana* (Griseb.) Gilg, *Bot. Jahrb.*, **22**: 304 (1896), non

Lamarck (1786) (*Lamarck, Encycl. Meth.* 2: 642).

*G. peruviana* is a perennial dwarf herb characterized by a rather fleshy tap-root, developed, oblong to oblanceolate basal leaves and oblong, ovate-oblong to obovate calyx-lobes which are as long as, slightly shorter or longer than the tube. It includes four species (*G. peruviana*, *G. hieronymii*, *G. boliviiana* and *G. lobelioides*) which are better treated as the following two varieties. The difference between var. *peruviana* and var. *boliviiana* is only of corolla size: larger flowers (16–17 mm) of the former and smaller flowers (11–13 mm) of the latter.

#### var. *peruviana*

*Gentiana hieronymii* Gilg, *Bot. Jahrb.*, 22: 305 (1896). Type: Argentina, Lorentz & Hieronymus 15 (K! – isotype), **syn. nov.**

*Gentianella hieronymii* (Gilg) Fabris, *Rev. Invest. Agric.*, Buenos Aires, 11: 396 (1958), in adnot.

#### var. *boliviiana* (Pax) T. N. Ho, stat. et comb. nov.

*Gentiana boliviiana* Pax, *Fedde, Rep. Nov. Sp.*, 7: 243 (1909). Type: Bolivia, Buchtien 1482 (n.v.).

*Gentiana lobelioides* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 30 (1917). Type: Peru, Weberbauer 955 (n.v.), **syn. nov.**

#### *Gentianella petrophila* (Gilg) T. N. Ho & S. W. Liu, comb. nov.

*Gentiana petrophila* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 42 (1906). Type: Peru, Weberbauer 2562 (n.v.).

#### *Gentianella pilgeriana* (Gilg) T. N. Ho & S. W. Liu, comb. nov.

*Gentiana pilgeriana* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 42 (1917). Type: Bolivia, Herzog 2410 (n.v.)

#### *Gentianella poulifera* (Gilg) T. N. Ho & S. W. Liu, comb. nov.

*Gentiana poulifera* Gilg, *Bot. Jahrb.*, 50(Beibl. 118): 48 (1913). Type: Peru, Weberbauer (n.v.)

#### *Gentianella porphyrantha* (Gilg) Fabris ex T. N. Ho & S. W. Liu, comb. nov.

*Gentiana porphyrantha* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 39 (1906). Type: Peru, Weberbauer 2803 (n.v.).

#### *Gentianella potamophila* (Gilg) Fabris ex T. N. Ho, comb. nov.

*Gentiana potamophila* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 74 (1917). Type: Peru, Weberbauer 6907 (n.v.).

#### *Gentianella primuloides* (Gilg) T. N. Ho & S. W. Liu, comb. nov.

*Gentiana vaginalis* Griseb. ex Wedd., *Chlor. And.*, 2: 53 (1859), non Griseb. (Gen. Sp. Gent., 215).

*Gentiana primuloides* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 37 (1917).

Types: Peru, Lechler 2002 (P! – lectotype designated here); Bolivia, M. Bang 1888 (BM! K!), 1889 (BM! K!), O. Kuntze (n.v.), Bock in herb. Herzog 2480c (n.v.), Herzog 2081 (n.v.).

#### *Gentianella pseudolycopodium* (Gilg) T. N. Ho & S. W. Liu, comb. nov.

*Gentiana pseudolycopodium* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 38 (1906). Type: Peru, Huamalies, Weberbauer 3353 (n.v.).

#### *Gentianella pulla* (Griseb.) T. N. Ho & S. W. Liu, comb. nov.

*Gentiana pulla* Griseb., *Goett. Abh.*, 19: 209 (1874). Type: Argentina, Lorentz 773 (K! – isotype).

#### *Gentianella punicea* (Wedd.) Holub, *Folia Geobot. Phytotax.*, Praha, 2: 118 (1967).

*Gentiana punicea* Wedd., *Chlor. And.*, 2: 70 (1859). Types: Bolivia, Mandon 364 (K! BM!); Peru, Weddell 4741 (P! – lectotype designated here).

*Gentiana dolichantha* Gilg, *Torrey*, 5: 109 (1909). Syntype: Bolivia, Lobb (n.v.), R. S. Williams 2489 (K! BM!), **syn. nov.**

*Gentiana purpureiflora* Gilg, *Bot. Jahrb.*, 54 (Beibl. 118): 65 (1917). Type: Bolivia, Herzog 2168 (n.v.), **syn. nov.**

The authors could find no distinction between *G. dolichantha* and *G. punicea* in any respect. *G. purpureiflora* is also identical to *G. punicea* in habit, leaf shape, corolla size as well as the character of the calyx-lobes. It seems that *G. purpureiflora* is supposed to differ from *G. punicea* in its corolla-lobes which are as long as the tube. However, there is a complete range of intermediates from short to long corolla-lobes in *G. punicea*. Therefore, *G. dolichantha* and *G. purpureiflora* are all reduced to synonyms.

*Gentianella raimondiana* (Wedd.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana raimondiana* Wedd., *Chlor. And.*, 2: 310 (1861). Type: Peru, Raimondi (n.v.).

*Gentianella roseo-lilacina* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana roseo-lilacina* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 35 (1906). Type: Peru, Weberbauer 2952 (n.v.).

*Gentianella sancti-mathacii* (R. C. Foster) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana sancti-mathacii* R. C. Foster, *Rhodora*, 56: 103 (1954), based on *Gentiana praticola* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 37 (1917), non Franchet (1896). (*Bull. Soc. Bot. Fr.*, 43: 489). Type: Bolivia, Herzog 1977 (n.v.).

*Gentianella sandiensis* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana sandiensis* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 36 (1906). Syntypes: Bolivia, Weberbauer 1016 (n.v.); Peru, Weberbauer 352, 445, 917a, 2593 (all n.v.), Poeppig (n.v.).

*Gentianella saxicola* (Griseb.) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana saxicola* Griseb., *Gen. Sp. Gent.*, 216 (1838). Type: Peru, Andes, Mathews (K! – isotype).

*Gentiana vaginalis* Griseb., *Gen. Sp. Gent.*, 215 (1838). Type: Peru, Pasco, Cruikshanks (K!), **syn. nov.**

The type of *G. vaginalis* is identical to the type of *G. saxicola* in all respects, e. g. dwarf herb, crowded leaves forming a rosette, leaves ovate or triangular, calyx-lobes all papillose on upper surfaces and distinctly ciliate on margins. *G. vaginalis* is therefore not maintained here.

*Gentianella scarlatiflora* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana scarlatiflora* Gilg, *Bot. Jahrb.*, 50 (Beibl. 111): 49 (1913). Syntypes: Peru, Lobb (n.v.), Weberbauer 5836 (n.v.).

*Gentianella scarlatina* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana scarlatina* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 36 (1906). Type: Peru, Sandia, Weberbauer 1047 (n.v.).

*Gentianella scarlatino-striata* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana scarlatino-striata* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 67 (1917). Type: Peru, Weberbauer 6621 (n.v.).

*Gentianella scopulorum* (Wedd.) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana scopulorum* Wedd., *Chlor. And.*, 32: 67 (1859), nec Tidestr. (1925) (*Contr. U.S. Nat. Herb.*, 26: 416). Type: Bolivia, Weddell 3928 (P! – holotype).

*Gentianella silenoides* (Gilg) Fabris in A. L. Cabrera, *Fl. Prov. Jujuy* (*Inst. Nac. Tecn. Agropec.*, 13), 8: 68 (1983).

*Gentiana silenoides* Gilg, *Bot. Jahrb.*, 22: 319 (1896). Type: Bolivia, Lorentz & Hieronymous 878 P. P. (n.v.).

#### var. *silenoides*

Flowers in a lax cyme; corolla 16–18 mm.

#### var. *striaticalyx* (Gilg) Ho, stat. et comb. nov.

*Gentiana striaticalyx* Gilg, *Bot. Jahrb.*, 54(Beibl. 118): 56 (1917). Type: Bolivia, Herzog 2046b. (n.v.).

*Gentiana anthosphaera* Gilg, *Fedde, Rep. Nov. Sp.*, 2: 46 (1906). Type: Bolivia, Fiebrig 2246 (K! P! – isotypes), **syn. nov.**

*Gentiana herzogii* Gilg, *Bot. Jahrb.*, 54 (Beibl. 118): 57 (1917). Type: Bolivia, Herzog 2018 (n.v.), **syn. nov.**

*Gentianella anthosphaera* (Gilg) Holub, *Folia Geobot. & Phytotax.*, Praha, 2: 116 (1967); Fabris in A. L. Cabrera, *Fl. Prov. Jujuy* (*Inst. Nac. Tecn. Agropec.*, 13), 8: 77 (1983), **comb. superfl.**

Flowers in a lax cyme; corolla 20–30 mm.

#### var. *inaequicalyx* (Gilg) Ho, stat. et comb. nov.

*Gentiana inaequicalyx* Gilg, *Bot. Jahrb.*, 22: 324 (1896). Syntypes:

Bolivia, Mandon 365 (K!), M. Bang 1143 (K!), O. Kuntze (n.v.).

Flowers in a dense umbel or subcapitulum; corolla 20–30(–35) mm.

*Gentianella serotina* (Cockayne) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana serotina* Cockayne, *Trans. Proc. N. Zeal. Inst.*, 47: 113. 1914 (1915). Type: New Zealand, W. 4724 (n.v.).

*Gentianella setipes* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana setipes* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 43 (1917). Type: Peru, Weberbauer 6322 (n.v.).

*Gentianella soratensis* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana soratensis* Gilg, *Bot. Jahrb.*, **22**: 332 (1896). Type: Bolivia, Rusby 675 (P! – holotype, BM! K! – isotypes).

*Gentianella speciosissima* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana speciosissima* Gilg, *Bot. Jahrb.*, **22**: 325 (1896). Type: Peru, Stuebel 24b, 25 (all n.v.).

*Gentianella spedenii* (Petrie) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana spedenii* Petrie, *Trans. Proc. N. Zeal. Inst.*, **56**: 14 (1926). Type: New Zealand, Princess Range, James Speden (WELT! – holotype).

*Gentianella spenceri* (Kirk) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana spenceri* T. Kirk, *Trans. Proc. N. Zeal. Inst.*, **27**: 335, t. 27 A, B. 1894 (1895). Type: New Zealand, Mount Rochfort, F. H. Spencer, W. 4711 (n.v.).

*Gentianella stellaroides* (Gilg) Fabris, *Bol. Soc. Argent. Bot.*, **8**: 180 (1960).

*Gentiana stellaroides* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 79 (1917). Types: Ecuador, Spruce (K! – lectotype designated here), Jameson (K!).

#### var. *stellaroides*

var. *androtricha* (Gilg) T. N. Ho, **stat. et comb. nov.**

*Gentiana androtricha* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 79 (1917). Type: Ecuador, Spruce 6050 (K!).

This variety is very similar to var. *stellaroides* in having linear to linear-lanceolate calyx-lobes, very long pedicels and large flowers (17–20 x 15–20 mm), but is distinguished by basal leaves with long petioles and elliptic caulin leaves.

*Gentianella stenosepala* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana stenosepala* Gilg, *Bot. Jahrb.*, **22**: 331 (1896). Type: Bolivia, O. Kuntze (n.v.).

*Gentianella stricticaulis* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana stricticaulis* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 62 (1917). Type: Peru, Weberbauer 6097 (n.v.).

*Gentianella stuebelii* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana stuebelii* Gilg, *Bot. Jahrb.*, **22**: 317 (1916). Type: Peru, Stuebel 35f (n.v.).

*Gentianella tarapacana* (Gilg) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana tarapacana* Gilg, *Bot. Jahrb.*, **22**: 305 (1896). Type: Chile, Philippi (K! – isotype).

*Gentianella tenuifolia* (Petrie) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana tenuifolia* Petrie, *Trans. Proc. N. Zeal. Inst.*, **45**: 270. 1912 (1913). Type: New Zealand, near Lyell, S. W. Nelson in herb. B. Petrie, W. Townson, W. 4721 (WELT! – holotype).

*Gentianella tereticaulis* (Petrie) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana tereticaulis* Petrie, *Trans. Proc. N. Zeal. Inst.*, **49**: 51. 1916 (1917). Type: New Zealand, Lake Harries, Routeburn Valley, W. Petrie (WELT! – holotype).

*Gentianella thiosphaera* (Gilg) Holub, *Folia Geobot. Phytotax.*, Praha, **2**: 118 (1967).

*Gentiana thiosphaera* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 46 (1906). Type: S. Bolivia, K. Fiebrig 3156 (P! – holotype, BM! K! – isotypes).

#### var. *thiosphaera*

*Gentiana comarapana* Gilg, *Bot. Jahrb.*, **54**(Beibl. 118): 82 (1917).

Type: Bolivia, Herzog 1914 (n.v.), **syn. nov.**

*G. comarapana* was originally described as having lanceolate calyx-lobes which are as long as the tube, and thus differs from *G. thiosphaera*. The calyx-lobes of both species are lanceolate, linear-lanceolate to linear and as long as to much longer than the tube. *G.*

*comarapana* is therefore not maintained here.

var. *macroclada* (Gilg) Ho, **stat. et comb. nov.**

*Gentiana macroclada* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 47 (1906). Type: Bolivia, K. Fiebrig 2654a. (n. v.).

This variety is very similar to var. *thiosphaera* and is distinguished only by smaller flowers (usually 12–14 mm).

*Gentianella townsonii* (Cheeseman) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana townsonii* Cheeseman, *Man. N. Zeal. Fl.*, 450 (1906). Syntypes: New Zealand, Mount Rochfort, W. Townson 288 (BM! K!), 389 (BM! K!).

*Gentianella tristicha* (Gilg) Fabris ex T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana tristicha* Gilg, *Fedde, Rep. Nov. Sp.*, **2**: 39 (1906). Type: Peru, Weberbauer 2933 (n.v.).

*Gentianella vernicosa* (Cheeseman) T. N. Ho & S. W. Liu, **comb. nov.**

*Gentiana vernicosa* Cheeseman, *Man. N. Zeal. Fl.*, 1145 (1906). Type: New Zealand, Mount Lockett, F. G. Gibbs (n.v.).

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## REFERENCES

- Allan, H. H., 1961. *Gentiana*. In *Flora of New Zealand* **1**: 764–779. Wellington.
- Fabris, H. A., 1953. Sinopsis preliminar de las Gentianaceae Argentinas. *Bol. Soc. Argent. Bot.*, **4**: 232–259.
- , 1955. Nuevas especies de 'Gentianella' del Peru. *Bol. Soc. Argent. Bot.*, **6**(1): 45–50.
- , 1958. Notas Sobre *Gentianella* del Peru. *Bol. Soc. Argent. Bot.*, **7**(2): 86–93.
- , 1959. Sobre la identid de dos species Sudamericanas de *Gentianella*. *Bol. Soc. Argent. Bot.*, **8**(1): 24–25.
- , 1960. El Genero *Gentianella* en Ecuador. *Bol. Soc. Argent. Bot.*, **8**(3–4): 160–191.
- Gilg, E., 1896. Beitrage zur Kenntnis der Gentianaceae I. *Bot. Jahrb.*, **22**: 301–347.
- , 1906. Beitrage zur Kenntnis der Gentianaceae III. Gentianaceae, Andinae. *Fedde, Rep. Nov. Sp.*, **2**: 34–52.
- , 1917. Monographische Zusammenstellung der *Gentiana*-Arten Sud-Amerikas. *Bot. Jahrb.*, **54**(Beibl. 118): 4–89.
- Gillet, J. N., 1957. A. revision of the north American species of *Gentianella* Moench. *Ann. Missouri Bot. Gard.*, **44**(3): 195–262.
- Grisebach, A. H. R., 1838 (1839). *Genera et species Gentianearum*. Stuttgart.
- Holub, J., 1967. Neue namen innerhalb der Gattungen *Gentianella* Moench, *Gentianopsis* Ma and *Comastoma* (Wettst.) Toyokuni, *Folia Geobot. Phytotax.* Praha, **2**: 115–120.
- , 1968. Einige neue nomenklatorische Kombinationen innerhalb der Gentianinae, *Folia Geobot. Phytotax.* Praha, **3**: 217–218.
- , 1983. A brief note on Slovak taxa of *Gentianella*, *Preslia*, **55**(4): 371–373.
- Pringle, J. S., 1981. Nomenclatural transfers and taxonomic notes on some South American Gentianaceae, *Phytologia*, **48**(4): 281–285.
- , 1987. A new species and taxonomic notes on *Gentianella* (Gentianaceae) in South America, *Sida*, **11**(4): 357–369.